

REMARKS

Prior to entry of this amendment, claims 1-20 are pending in the subject application.

Applicants respectfully request, in connection with the next Office action, that the Examiner indicate the acceptability of the drawings filed on January 26, 2004.

Claims 1-20 are presented for further consideration on the merits. Claims 1, 7 and 13 are independent.

A. Introduction

In the outstanding Office Action Made Final,

- (a) claims 1-4, 6-10, 12-16, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japan Patent Abstract No. 2001-138272 to Jinichi ("the Jinichi reference") in view of "Mechanism and Control of a Leg-Wheel Hybrid Mobile Robot," Proceedings of the 1999 IEE/RSJ, 1999 IEEE to Adachi et al. ("the Adachi et al. reference");
- (b) claims 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Jinichi reference in view the Adachi et al. reference and further in view of U.S. Patent Publication No. 2003/0114960 to Takenaka et al. ("the Takenaka et al. reference"); and
- (c) claims 5, 11 and 17 were objected to as being dependent upon a rejected base claim, but were indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

B. Asserted Obviousness Rejection of Claims 1-4, 6-10, 12-16 and 18

In the outstanding Office Action Made Final, claims 1-4, 6-10, 12-16 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Jinichi reference in view of the Adachi et al. reference. Applicants respectfully traverse this rejection for at least the reasons set forth below.

No *prima facie* of Obviousness Exists

Independent claim 1 recites that an ambulatory robot includes, *inter alia*, a “slope-detection means for sensing a slope of a floor.” Applicants respectfully submit that the Jinichi et al. and the Adachi et al. references, whether alone or in combination, fail to disclose or even remotely suggest a means for sensing a *slope* as recited in claim 1. Since a *prima facie* case of obviousness under 35 U.S.C. § 103(a) requires that all of the claim features be shown in the references, applicants respectfully submit that no proper *prima facie* case of obviousness has been established with respect to claim 1 for at least this reason.

With respect to the assertion on pages 2 and 4 of the Office action of January 10, 2008, that the ultrasonic range sensor of the Adachi et al. reference teaches a “slope-detection means for sensing a slope of a floor,” applicants respectfully disagree. More specifically, applicants respectfully note that the Adachi et al. reference teaches an ultrasonic sensor.¹ Applicants further note that an ultrasonic sensor detects objects by transmitting an ultrasonic pulse in a predetermined direction and receiving a reflected pulse from the detected object. See, e.g., The Wikipedia Encyclopedia, *available at* <http://www.wikipedia.org>. In other words, an object must be on the path of the ultrasonic pulse of the ultrasonic sensor to be detected. Accordingly, applicants respectfully submit that an ultrasonic sensor *cannot detect slopes* because slopes are not necessarily on the path of the ultrasonic pulse of the ultrasonic sensor. For example, when the ultrasonic sensor is on a slope, whether constant or non-constant, the ultrasonic sensor cannot detect the slope because an ultrasonic pulse would not be transmitted toward the ground.² Therefore, applicants respectfully submit that the

¹ The Adachi et al. reference, Section 3, Last paragraph.

² As an additional example, applicants point out that the “step mode” of the robot in the Adachi et al. reference is utilized only when large steps are encountered, as indicated in section 4.2 of the Adachi et al. reference, because the ultrasonic sensor can detect only objects on the path of its pulse. Applicants further point out that when a terrain is only “rough” and does not include “large steps” an operator must switch between the “wheel mode” and the “hybrid mode.”

ultrasonic sensor of the Adachi et al. reference fails to teach or even remotely suggest a “slope-detection means for sensing a slope of a floor.”

Applicants, therefore, respectfully reiterate that the Jinichi et al. and the Adachi et al. references, whether alone or in combination, fail to disclose or even remotely suggest a means for sensing a slope as recited in claim 1, and therefore, claim 1 is allowable for at least this reason. Independent claims 7 and 13 include language similar to the language of claim 1, i.e., “sensing a slope of a floor” and a “slope-detector for sensing a slope of a floor,” and therefore, are allowable for at least the same reasons as claim 1.

Lack of Motivation to Combine

In addition, applicants respectfully submit that the proposed combination of the Jinichi et al. and the Adachi et al. references is unworkable. It is well-settled law that for a claimed invention to be rejected on grounds of obviousness, “some objective teaching in the prior art or ... knowledge generally available to one of ordinary skill in the art would [suggest an] individual *to combine the relevant teachings* of the references.” *Tec Air Inc. v. Denso Manufacturing Michigan Inc.*, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999) (*emphasis added*). There is no motivation to combine, however, if the proposed combination and/or modification changes the principle of operation of the primary reference. See, MPEP § 2143.01.

Applicants respectfully note that the Jinichi et al. reference is directed toward a humanoid-type robot that walks on two legs. *The Jinichi et al. reference*, Abstract; FIG. 1. Applicants further note that the Adachi et al. reference, on the other hand, is directed toward a robot moving on four legs/wheels of different sizes. In particular, the different sizes/structure of legs of the robot in the Adachi et al. reference provide a robot that can propel its back legs over the main body in order to flip over large obstacles, e.g., steps. *The Adachi et al. reference*, FIG. 7 and corresponding text. Applicants respectfully submit that the Office action fails to provide sufficient evidence to support why would one of ordinary

skill in the art consider incorporating any of the features of the vehicle-type robot of the Adachi et al. reference into the humanoid-type robot of the Jinichi et al. reference.

Applicants respectfully traverse the assertion on pages 3 and 5 of the Office action of January 10, 2008, that the motivation would be “using a sensing means to determine the condition of the terrain surrounding the robot to automatically switch between locomotive modes” and detecting “the slope of the floor surface and obstacles such as steps [in order to] allow[] the robot to adapt physically to the environment... by braking/locking the front wheels to increase stabilization over uneven ground.” Firstly, the ability of the robot of the Adachi et al. reference to adapt to the environment upon sensing obstacles, e.g., switch locomotive modes, lock front wheels, propel back legs over body, is *design-specific* and intended for a *four legged/wheel robots*. Such features are not applicable in the *two-legged humanoid-type robot* of the Jinichi et al reference. Secondly, even if, *arguendo*, the ultrasonic sensor of the Adachi et al. reference were to be incorporated into the robot of the Jinichi et al. reference, the principle design of the robot of the Jinichi et al reference would have to change. More specifically, in order to detect obstacles on the ground, the ultrasonic sensor of the Adachi et al. reference would have to rotate around a vertical axis of the two-legged robot’s and in close proximity to the ground. Such a sensor, however, would interfere with the operation of the robot’s legs, and therefore, would require re-design of the robot. Applicants, therefore, respectfully submit that one of ordinary skill in the art would have been *discouraged* from incorporating features of the Adachi et al. reference into the Jinichi et al reference. Applicants, therefore, respectfully reiterate that no motivation exists to combine the Jinichi et al. and the Adachi et al. references.

In view of the above, applicants respectfully submits that the Jinichi et al. and the Adachi et al. references cannot be said to suggest the subject matter of the present invention, much less propose a proper modification thereof to provide the robot as recited in claims 1, 7,

and 13. Accordingly, applicants respectfully submits that claims 1, 7, and 13 are allowable over the cited references. Claims 2-4, 6, 8-10, 12, 14-16, and 18 depend from claims 1, 7, and/or 13, and therefore, are allowable for at least the same reasons. Therefore, applicants respectfully request favorable reconsideration and withdrawal of the rejection of claims 1-4, 6-10, 12-16, and 18 under 35 U.S.C. § 103(a).

C. Asserted Obviousness Rejection of Claims 19 and 20

In the outstanding Office Action Made Final, claims 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Jinichi reference in view the Adachi et al. reference and further in view of the Takenaka et al. reference. The rejection is respectfully traversed for at least the following reasons.

Applicants respectfully note that the Jinichi et al. and the Adachi et al. references, as discussed above, fail to teach or suggest a slope-detector as recited in claim 13. The Takenaka et al. reference fails to teach the elements indicated above as missing from the Jinichi et al. and the Adachi et al. references. Accordingly, applicants respectfully submit that claims 19 and 20 are allowable for at least the reasons set forth above regarding claim 13.³

D. Allowable Subject Matter

Applicants appreciate the Examiner's indication of allowable subject matter in claims 5, 11 and 17. It is respectfully submitted, however, that all of the pending claims are in condition for allowance for at least the reasons set forth above.

E. Conclusion

The above remarks demonstrate the failings of the outstanding rejections, and are sufficient to overcome them. However, while these remarks may refer to particular claim

³ As an additional matter, applicants respectfully point out that the teachings of the Takenaka et al. reference, as cited on page 6 of the Office action of January 10, 2008, teach away from the present application. For example, paragraphs [0005]-[0009], cited in the Office action as teaching the sensor recited in claims 19-20, specifically list shortcomings of the inclination sensor, e.g., soft material on the shoe soles may decrease accuracy.

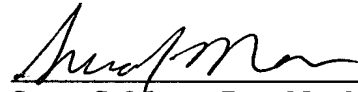
elements, they are not intended to, nor need they, comprehensively address each and every reason for the patentability of the claimed subject matter over the applied art. Accordingly, applicants respectfully submit that the claims are allowable for reasons including, but not limited to, those set forth above, and patentability of the claims does not depend solely on the particular claim elements discussed above.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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PETITION and
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If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.